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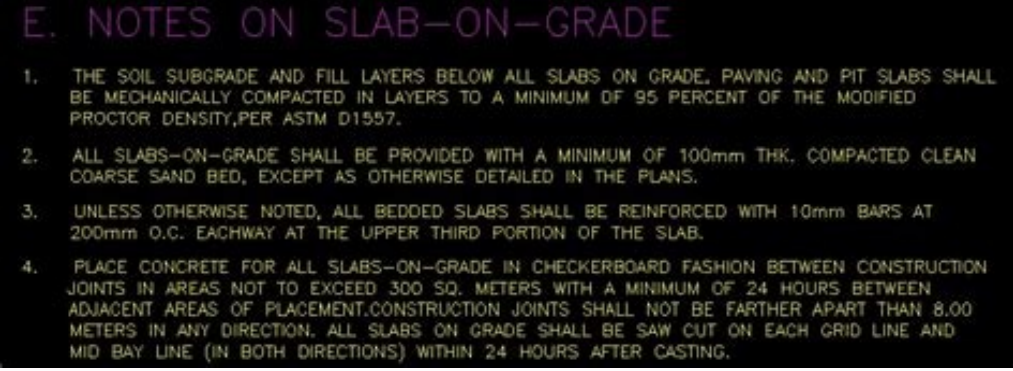

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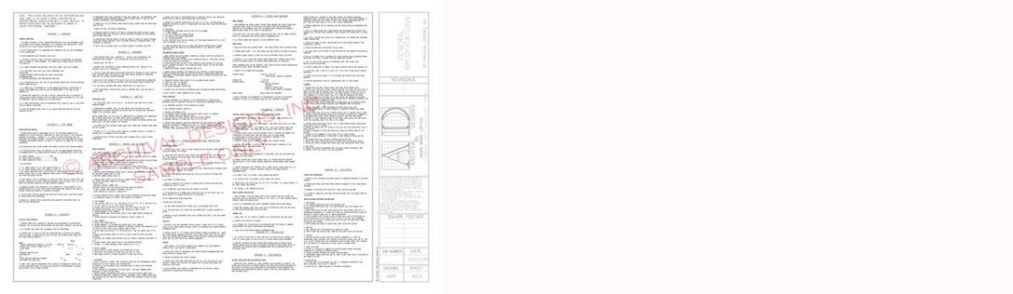
General notes for architectural construction drawings

In a previous Keynotes article¹, general notes were briefly discussed including the observation that general notes frequently include content that is more appropriately, and probably is, indicated elsewhere. However, design professionals seem to embrace the mantra that mentioning it once is good, but mentioning it twice (or more) is even better. The problem with mentioning more than once is the potential conflict between the various requirement locations. The CSI principle of "say it once and in the right place" arose out of frequent conflicts between drawings, specifications, and other contract documents, and many of these conflicts are generated through the improper use of notes on drawings. As mentioned in the earlier article, there are three types of general notes that can be used in a set of construction drawings. Listed below is each type along with the description found in the Uniform Drawing System (UDS), which is a part of the National CAD Standard (NCS): General Notes: "Notes that apply to the entire work. As such, general notes apply equally to all disciplines and to all sheets within the drawing set." General [Discipline] Notes: "Notes that apply only to a particular design discipline. Users should provide a heading for these notes by replacing the [discipline] place holder with the name of the particular design discipline." General Sheet Notes: "Notes that apply only to the particular sheet on which they appear." General Notes As described in the UDS, basic general notes provide information that is applicable to all sheets for all disciplines. Therefore, architects (who are, in most cases, the prime design professional) need to make sure that the basic general notes included in the construction documents are applicable to all disciplines. If they apply only to the architectural sheets, then they should be identified as such per the second type of general notes. Take a look at most 'General Notes' on a set of construction drawings and you will notice that in many cases the notes are many and sometimes lengthy. If architects were to spend a little time to actually read the 'general' notes they always place on the drawings, they will likely find that one of the three following characteristics will apply to most of them: The intent of the note is already addressed in the general conditions of the contract; The intent of the note is already addressed in Division 01 of the specifications; or, The note is only applicable to the architectural sheets. For example, consider the following note, which, in some variation, is commonly found in many 'General Notes': Discrepancies between actual condition and drawings shall be brought to the attention of the Architect. Contractor shall submit specific discrepancies for Architect review. Characteristic #1 would apply to this example since the general conditions will usually address this situation. For projects using the American Institute of Architects (AIA) Document A201-2007, General Conditions of the Contract for Construction, Section 3.2.2 covers the same requirement (see portion with added underline) as in the general note above, but includes more specific direction for the contractor: Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents. If the project does not use AIA Document A201, the architect should review the general conditions that will be used for similar language. If no similar requirement is in the general conditions, then a general note on the drawings, like the example, or a requirement in specification Section 01 73 00 "Execution," would suffice. However, the requirement should be revised to include the method in which the contractor should inform the architect, such as AIA Document G716 Request for Information form, CSI Form 13.2A Request for Interpretation, or some other approved form or electronic method. General notes that paraphrase requirements provided elsewhere (e.g. the general conditions or specifications) may generate various interpretations. Altered wording used in a general note to simplify it may be interpreted differently than the more specific wording used in another contract document. Even though the intent may have been to replicate a requirement, the paraphrased format of the general note itself could create a conflict. Another common general note is one similar to the following: All work shall be performed with the highest level of workmanship standards of the building trades working under this contract. The first question that should come to anyone's mind after reading the note above should be, "How will it be enforced?" This overarching requirement is akin to requiring design professionals to perform to the highest level of care—something professional liability insurers will refuse to insure. Characteristic #2 would apply to this note, so leave it out and let the specifications establish the minimum level of workmanship through the use of tolerances and reference standards.² Finally, as an example of characteristic #3, take a look at this 'general' note: All studs and any other framing are at 24" o.c. minimum unless noted otherwise. With the possible exception of the structural drawings, the above note is only applicable to the architectural drawings. General notes that are specific to a discipline, should be separated from the basic general notes and located with the discipline sheets to which they apply. Thus, the example note should be placed with the 'General Architectural Notes.' General [Discipline] Notes General [Discipline] Notes, as the format implies, is to identify general notes that are specific to a particular discipline—with the bracketed 'Discipline' being replaced with the applicable discipline, such as Architectural, Structural, Mechanical, Electrical, etc. Although the UDS provides a format for titling the general notes for disciplines, very few disciplines actually follow it. Most disciplines will use the title "General Notes" and place them on the first sheet of their drawings, assuming that readers of the drawings will make the connection. The rare exception is the structural engineering profession, which seems to have universally adopted the format (more on this later). These notes usually include with such great detail that they border on the edge of specifications (actually, they have probably crossed that line). Structural engineers have defended the practice by stating that the information is required by the building code. That is partially true. Section 1603.1 of the 2012 International Building Code (IBC) requires that the construction documents indicate "design loads and other information pertinent to the structural design required by Sections 1603.1.1 through 1603.1.9." However, the sections identified by the IBC only require that live loads (floor and roof), snow loads, wind loads, seismic data, geotechnical information, flood data, special loads, and items requiring special inspection be shown on the construction documents. Nowhere does it mention that material and installation requirements be shown. The specifications are a more appropriate location for these requirements. General Sheet Notes General sheet notes are not to be confused with the keynotes used on the sheet—they are simply a general note that applies to the sheet on which it is placed. General sheet notes typically do not apply to a single item on the sheet, but provide written explanatory information for interpreting the graphic information shown on the sheet. The same general sheet note may appear on multiple sheets of the same type. For example, the following general sheet note may be repeated on all applicable floor plan sheets: All dimensions are to face of stud unless noted otherwise. Or the following note may appear on all reflected ceiling plans: Ceiling heights shown are 9'-0" unless noted otherwise. However, if a note is used on every architectural sheet because it is applicable to every sheet (Characteristic #3), then the note should be mentioned only once at the beginning of the architectural sheets as a general discipline note. The general sheet notes, like the other notes discussed, can also find themselves replicating other requirements per Characteristics #1 and #2, so they should be reviewed to prevent duplicating or conflicting information. Conclusion General notes are important for proper interpretation of the construction drawings, but like many things, more does not always mean better. General notes used on drawings should be carefully selected and written so as not to duplicate, paraphrase, or contradict other contract documents. 1 Keynotes No. 3, "Drawing Notations," Spring 2010. 2 Read more about this type of note in the 07/18/11 post of "Blueprint" or "Architectural drawing" but all of these are a part of construction drawings. In practice, many people may also refer to each separate drawing on its own. For example, instead of saying construction drawing, one may simply call it a plan or an elevation depending on which drawing they are talking about. Those of us that have not experienced these drawing before tend to overlook the significance of the information they provide even though they are an imperative part of a project. As these drawings can essentially be seen as a map that will lead the construction team towards a successful completion of the project. Construction drawings must be concise and well-thought-out, as they are not only used as a guide for the construction process but also have legal significance. They are included in the construction contract and tender documents, which makes them a vitally important part of the agreement between the construction company/contractor and the client. Overall, it is quite clear that construction drawings are integral to our project as they provide the contractor with all the information that may be required on-site. They also provide the client with a realistic depiction of what the finished product will look like and ensure smooth execution of the design.

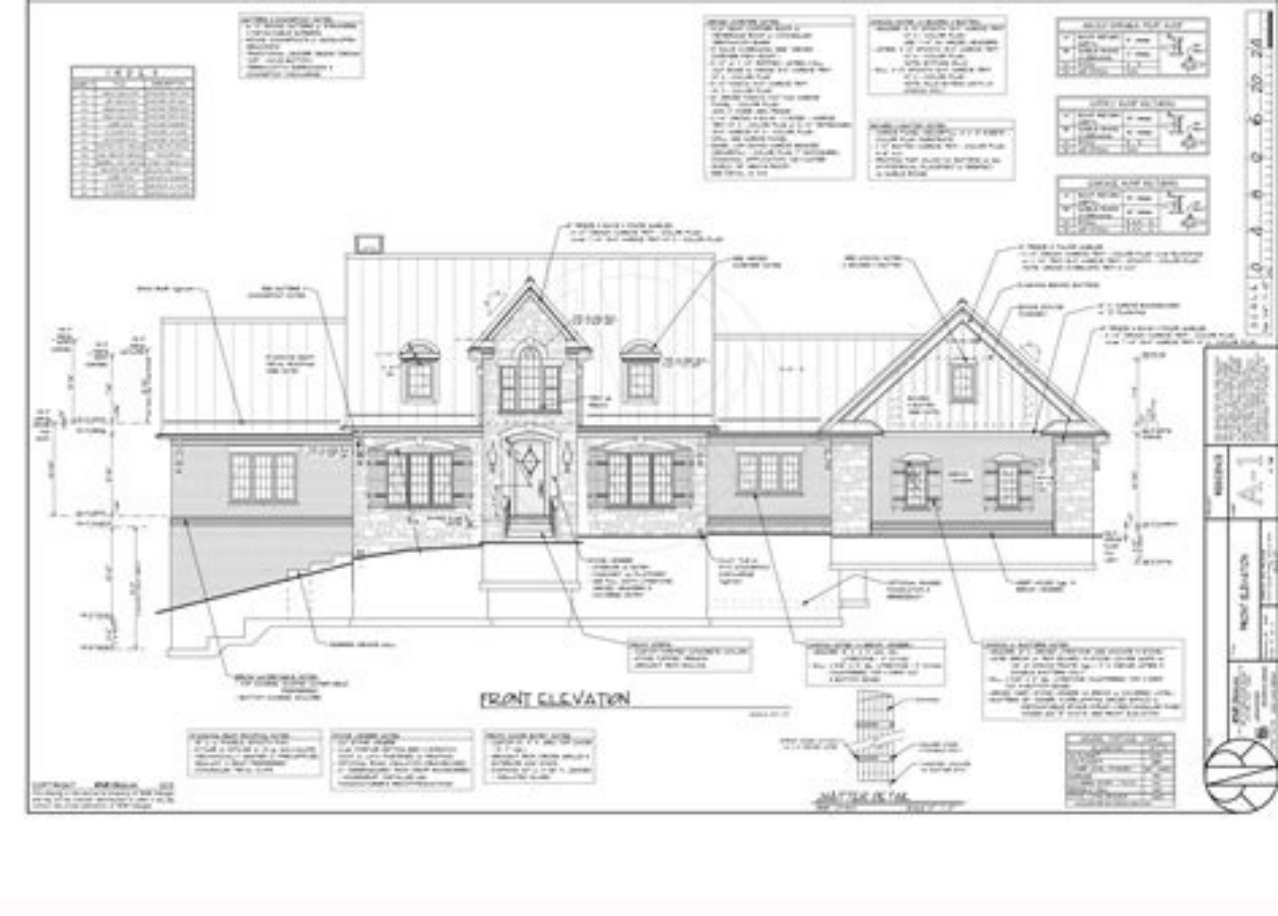
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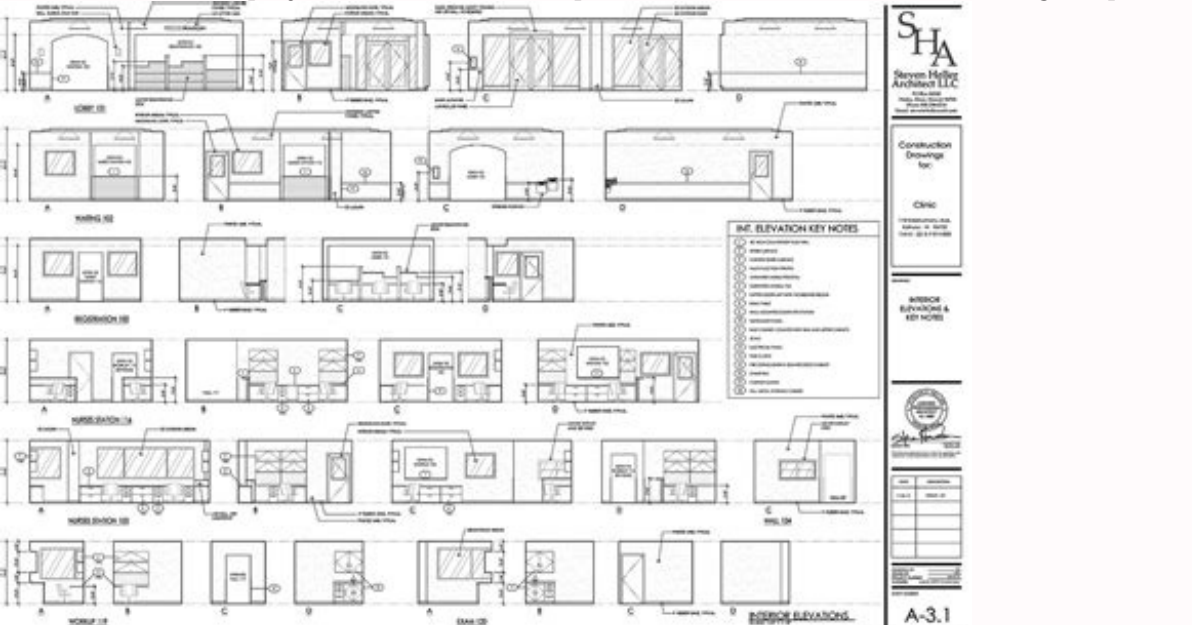
Firstly... A construction drawing is an umbrella term for the technical drawings (usually a whole set of drawings) which provide graphic representation and guidelines for a project that is to be built. These drawings are a part of the information prepared by the design team in order to provide important instructions regarding the proposed building and how it is to be constructed. These drawings are not sketches or crudely dimensioned layouts, they are technical and refined information documents that ensure the smooth running of your project. We must make sure that these drawings provide precise dimensions, details, and are according to the specification document (the document which entails pre-agreed workmanship, materials, etc.) included in the contract. Depending on the author of the project and the project itself, the specifications might be detailed in the construction drawings as well. But it is better practice to keep these documents separate to avoid disparity between the two if a change is made in one document but the other is not updated. As mentioned previously, these drawings usually consist of a set that includes all floor plans, multiple sections, elevations, structural drawings, etc. A detailed overview of these drawings is also discussed further down in this article. Another area to keep in mind is that many people get confused when they hear the words "Blueprint" or "Architectural drawing" but all of these are a part of construction drawings. In practice, many people may also refer to each separate drawing on its own. For example, instead of saying construction drawing, one may simply call it a plan or an elevation depending on which drawing they are talking about. Those of us that have not experienced these drawing before tend to overlook the significance of the information they provide even though they are an imperative part of a project. As these drawings can essentially be seen as a map that will lead the construction team towards a successful completion of the project. Construction drawings must be concise and well-thought-out, as they are not only used as a guide for the construction process but also have legal significance. They are included in the construction contract and tender documents, which makes them a vitally important part of the agreement between the construction company/contractor and the client. Overall, it is quite clear that construction drawings are integral to our project as they provide the contractor with all the information that may be required on-site. They also provide the client with a realistic depiction of what the finished product will look like and ensure smooth execution of the design.



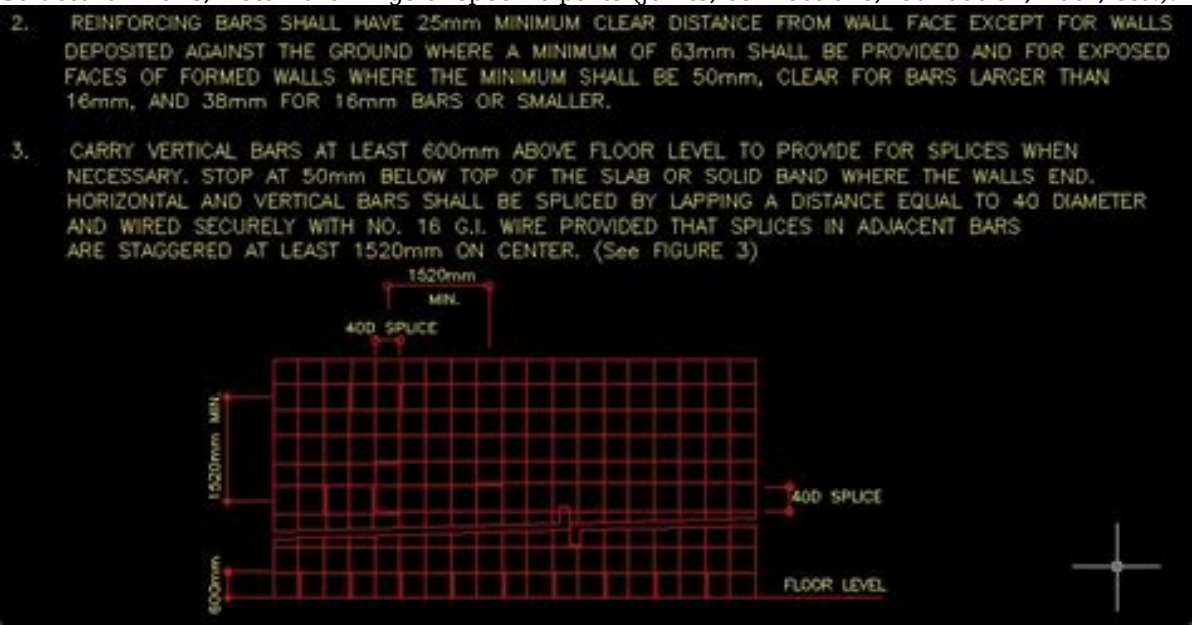
With the advent of time, architecture has changed and so have the methods of its creations. Until the late 1980s, most construction drawings were handmade but digital drafting became pervasive in the industry over the next few years. Nowadays, handmade drawings are rare and most people prefer to make these drawing through some digital software such as AutoCAD, REVIT or Rhino, etc. But are all construction drawings made by architects? While an architect may have enough expertise to create not only the architectural drawings (plans, sections, etc.) but also the structural and mechanical (plumbing/electrical) drawings. This mostly happens in small-scale projects and sometimes external specialists are hired. This point is elaborated on below in detail. As mentioned previously, generally when we talk about construction drawings, we are referring to plans, sections, window/door/finish schedules, and elevations. But sometimes they may include information drawings for other professionals such as electrical plans, plumbing plans, and HVAC (heating, ventilation, and air conditioning) system details. The exact constituents of the set vary from project to project, depending upon the scale and specifications along with the needs of the client.



In most small-scale projects, an architect will provide the client with all the drawings required for the construction process. But again, for complex, large-scale, or specialty projects (e.g. large-scale industries, airports, malls, etc.), an increased level of information and external collaboration with specialists might be required.



Hence, the construction documents on these projects will include drawings that might not be required in other projects. For ease of understanding, we can divide these drawings into the following categories:\ Architectural Drawings: Site plan, Floor plans, Sections, Elevations, Furniture, plan, Door and Window schedule. Structural Drawings: Structural Plans, Detail drawings of specific parts (joints, connections, foundation, floor, etc.).



Roof and ceiling plans. Mechanical Drawings: Include information on mechanical work i.e. plumbing and drainage, HVAC, fire protection, transportation (elevator, lifts, escalators) Keep in mind that these categories are not concrete and may overlap at various points if the project requires and/or permits. Each construction drawing has its purpose and specific information that it contains, but one thing they all have in common is that they are all made to scale. For example, 1/12" = 1' (one-twelfth on an inch on paper will be equal to one foot in reality). The following portion elaborates upon the information that different construction drawings impart: Put simply, a "Plan" refers to the top view of an object, and so a Site Plan is essentially a map that shows the extent of the proposed site. This is created after a careful and thorough analysis of the proposed area for construction and the new construction is marked on it, this provides the contractor with the exact dimensions, access point, greenery, existing physical features, and other details of the site. More often than not, the neighboring context is also included in the site plan as it might impact the functionality of the proposed structure/building. Floor plans are a fully detailed 2D map of the inside of the building. Each floor within a building has its separate floor plans e.g. a building with 3 floors will have 3 distinct floor plans with each detailing the components of its respective floor. This plan also provides distinction between each room i.e. it provides annotations for the bathrooms, bedrooms, kitchen, etc. Floor plans provide dimensions of walls, rooms, openings (doors, windows), as well as furniture placement and the specific materials that should be used. Elevations are essentially an overview of the exterior faces of the building. They are drawn as a vertical depiction of the building if one was to look straight at it from the outside. Most buildings have 4 elevations that portray the exterior from all four directions. Elevations are useful because not only do they specify the material and height details for the building but also provide an insight into what the building might look like from the outside, once it is constructed. Sections are extremely useful drawings especially when you are dealing with multiple floors in a project. They are similar to elevations in that they both present a vertical depiction the project but as the name might suggest, sections only show a specific part instead the entire view. A section provides us with the hidden details that can be seen if the building were to be cut vertically. These details are incredibly important as they provide us with the detailing of the structure of the buildings (position of lintels, foundation, columns, beams, etc.). Since mostly the scale of the drawings is so small that it is impossible to see the minute detailing in various components. For this purpose, blown-up drawings of just those specific components are provided to the contractor and builders. The scale is much bigger than that of regular drawings (for example it might be around 1"= 10' while normal drawings are around 1"= 20' or 1"=40' (for commercial projects). The details include things like window and door frames, stairs, connections, and joints between two components. Detail drawings vary in every project depending on what that project includes. For example, the details of a spiral staircase will be completely different from those of a normal staircase. Since a building will have multiple windows and doors of different sizes in various locations around the house, a window and door schedule is attached with the other blueprints. A schedule will include in detail, all specifications regarding each window or door that is to be installed in the building. Window schedules are usually longer than door schedules and include details about the size, kind, location, materiality, etc. of the window. A door schedule, on the other hand, will provide the same information about all the doors that are to be installed. Providing a well-composed schedule to the construction team will make their job easier and ensures the correct installation of the door or window into the building. And while these old understanding drawings might be quite challenging, especially for a beginner, it is not something that you can't ever learn. So, it might be a good idea to read a few articles such as this one and watch informative videos (as linked below) when you are looking to enhance your grasp of construction drawings. If you're looking to learn about construction drawing from the very beginning, click here to start an incredibly detailed and helpful series on YouTube that covers all the basics from start to finish. The video not only allows you to learn how to communicate with construction drawings on paper but also talks about common terms that professionals use in the field. This video can be a great way to start ones learning journey. If you are looking to learn more in-depth about the multiple kinds of construction drawings and how the design team uses blueprints to communicate with the construction team, this video will be a good idea, especially for those who are new in the field and are looking to familiarize themselves with the working dynamic of construction drawings. We realize many of you are wondering the same question, how is a working drawing different from a construction drawing, right? Well, a working drawing can be considered a subset as the main difference occurs in the design phase when the design drawings are developed into a thorough and precise set of construction documents. These drawings with specifications contain all the details and notes to explain the entire design intent to the builder. One key difference in working drawings is the need to be reviewed from time to time and at the end of the project to produce the As-built drawings. Shop Drawings, Construction Drawings, and As-Built Drawings are all essential parts of the construction process and if you are involved in the Architecture, Engineering, and Construction (AEC) industry you will most likely be familiar with these. As we have briefly discussed construction drawings here, we'll look into shop drawings and As-built drawings and talk about them and their differences. Shop drawings - Also known as prefabrication drawings are detailed plans and sketches that provide necessary information to the fabricator about the manufacturing, assembly and installation of the components of a structure. They are considered add-on or a detailed drawing of a component, mostly used in steel detailing, door & window details, and mechanical, electrical, and plumbing engineering (MEP) components. These drawings are prepared before the construction phase and integrated with construction drawings such that every member of the team is on the same page. As-built drawings - These are called record drawings as they are a revised set of drawings submitted by a contractor upon completion of a project or a particular work. They provide a set of documents that reflect all the changes made in the drawings throughout the construction process. The final as-built drawings contain all the actual dimensions and specifications with which the structure is built. It contains modifications, field changes, shop drawing changes, design changes, and miscellaneous work. They are mainly worked on by contractors and builders. They are useful for future development and renovations of the structure. A single construction drawing often has to convey many different sets of information that have to be easily read and executed. Drawing symbols provide an excellent shorthand method to producing this detailed information, without over cluttering the drawing and therefore maintain its legibility. Generally speaking there are a universal set of symbols, drawing standards, and markers that architects use to represent anything from a scale bar and north point to a pendant light and power socket, which together with over 325 CAD blocks we provide in our AutoCAD Template Kit below: Construction drawings are a set of technical drawings that are used to communicate the design and construction of a building or other structure. There are generally six types of construction drawings that are used in the design and construction process: Architectural drawings: These drawings show the overall layout and design of the building, including the floor plans, elevations, and sections. Structural drawings: These drawings show the structure of the building, including the foundation, beams, columns, and other structural elements. Electrical drawings: These drawings show the electrical systems of the building, including the locations of outlets, switches, and lighting fixtures. Mechanical drawings: These drawings show the heating, ventilation, and air conditioning (HVAC) systems of the building. Plumbing drawings: These drawings show the plumbing systems of the building, including the locations of pipes, fixtures, and appliances. Fire protection drawings: These drawings show the fire protection systems of the building, including the locations of sprinklers, alarms, and extinguishers. Together, these construction drawings provide a detailed and comprehensive representation of the building or structure, including its design, layout, and systems. They are used by architects, engineers, contractors, and other professionals involved in the design and construction process to ensure that the building is constructed according to the plans and specifications. Construction drawings typically consist of several different parts that provide detailed information about the design and construction of a building or other structure. The five main parts of a construction drawing are: Title block: This is a section at the bottom of the drawing that contains information about the drawing, such as the title, date, scale, and drawing number. Legend: This is a list of symbols and abbreviations used on the drawing to represent different elements or features. Notes: These are written instructions or clarifications that provide additional information about the drawing. Dimensions: These are numerical values that specify the size and location of elements or features on the drawing. Drawing: This is the main part of the drawing that shows the layout and design of the building or structure, including the floor plans, elevations, and sections. Together, these five parts of a construction drawing provide a comprehensive representation of the building or structure, including its design, layout, and specifications. They are used by architects, engineers, contractors, and other professionals involved in the design and construction process to ensure that the building is constructed according to the plans and specifications. They are also known as "blueprints" or "architectural plans." Construction drawings typically include a variety of different types of drawings, such as floor plans, elevations, sections, and details, which show the layout, design, and specifications of the building or structure. They may also include other types of drawings, such as electrical, mechanical, plumbing, and fire protection drawings, which show the various systems and features of the building. Construction drawings are used by architects, engineers, contractors, and other professionals involved in the design and construction process to communicate the design and construction of the building or structure. They are also used by building officials and other regulatory agencies to ensure that the building is constructed in accordance with local building codes and regulations. Construction drawings are typically prepared by architects, engineers, or other professionals who are trained in design and construction. Architects are responsible for designing the overall layout and appearance of a building or other structure, including the floor plans, elevations, and sections. They may also be involved in the preparation of other types of construction drawings, such as electrical, mechanical, plumbing, and fire protection drawings, which show the various systems and features of the building. Engineers, such as structural, electrical, mechanical, and plumbing engineers, are responsible for designing the various systems and features of a building or other structure. They prepare construction drawings that show the layout and design of these systems and features, as well as any necessary calculations and specifications. Construction drawings may also be prepared by drafters or technicians, who use computer-aided design (CAD) software to create the drawings based on the design and specifications provided by the architect or engineer. Construction drawings are an important part of the design and construction process, as they provide a detailed and comprehensive representation of the building or structure, including its design, layout, and specifications. They are used by architects, engineers, contractors, and other professionals involved in the design and construction process to ensure that the building is constructed according to the plans and specifications. It is almost impossible to overstate the importance of construction drawings in the process of designing and building. All that has been planned for the project and all that might be changed in the built structure is communicated through them. They are a record of design, a communicative visual, and a legal document that is imperative in the field of architecture and construction. Overall it wouldn't be wrong to say that construction drawings are crucial to the successful completion of a project and it would be impossible to carry out construction endeavors without them.

